PrintSuite for iSeries

IBM

SAP R/3 Advanced Function Printing: Printing on iSeries

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> **Note!**
>
> Before using this information and the product it supports, read the information in "Notices" on page 23.

Third Edition (May 2002)

This edition of the *SAP R/3 AFP: Printing on iSeries* applies to the licensed program IBM AFP PrintSuite for iSeries which applies to the IBM Operating System/400 (Program 5769-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the proper edition for this level of the product.

This edition contains information from and makes obsolete the *SAP R/3 AFP: Printing on the AS/400*, S544-5412-01. Changes or editions to the text are indicated by vertical bars in the left margin.

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Summary of Changes

Changes have been made to the *SAP R/3 AFP: Printing on iSeries* to support the following:

- Specifying SCS output for both ABAP and OTF data
- Specifying a directory in which modified tables are stored
- Addition of four new configuration files: defcp.japan, defcp.korea, pagedef.japan, and pagedef.korea
- AFP PrintSuite for iSeries (formerly AFP PrintSuite for AS/400)
- SAP R/3 Version 4.6, SAP Web Application Server 6.x and higher
- Printers that use the SNA Character (SCS) data stream
- Support for output files generated by the SAP Global Language Support (GLS) version on IBM eServer iSeries.

Chapter 1. Introduction

Volume printing is essential for SAP R/3 users who print large amounts of data. This publication describes how to use Advanced Function Presentation (AFP) printers for volume printing AFP data from SAP R/3.

SAP R/3 has become a popular choice for medium to large companies that require an integrated software product to provide basic business automation. The SAP R/3 client/server application provides businesses a series of integrated modules that span the major functions of manufacturing, finance, sales, distribution, and human resources. Each module accesses the processes of over 1000 different businesses and each process is based upon industry best practices. [1]

The SAP R/3 AFP PrintSuite for iSeries feature provides OS/400 users with the **Convert Print Data** (**CVTPRTDTA**) command. The **CVTPRTDTA** command enables you to use high-speed IPDS printers. The **CVTPRTDTA** command calls the **SAP2AFP** program to provide a direct transform of SAP R/3 print data into AFP's native MO:DCA-P data stream. The MO:DCA-P data stream (called AFPDS on OS/400) contains text records that you can print using typographic fonts. You can also print bar codes, images, and reference overlays.

You directly call the **SAP2AFP** program specifying the **-scs** parameter to print SCS output. The SNA Character (SCS) data stream contains text records that you can print using printer-defined fonts. The SCS support of the **SAP2AFP** program does not support bar codes, images, and overlays. For more information about printing the SCS data stream, see "Printing SCS data with the SAP2AFP Program" on page 13.

The **CVTPRTDTA** command formats and prints your ABAP data stream information as LINE data and your OTF data stream information as AFPDS data. When you use the **SAP2AFP** program with the **-scs** parameter to print SCS information, your ABAP and OTF data stream information is formatted and printed as SCS data. Table 1 shows possible data streams and outputs.

Table 1. Data Stream Conversion

Data Stream	LINE Output	AFPDS Output	SCS Output
ABAP	X		X
OTF		X	X

You may use the **-u** parameter of the **SAP2AFP** program to specify fully-qualified path names where your modified tables are stored. For information about specifying a fully-qualified path name, see "Specifying a Fully-Qualified Path Name Using the SAP2AFP Program" on page 14.

This publication is intended for the system administrator who must:
- Check system prerequisites for using the **CVTPRTDTA** command
- Install the **CVTPRTDTA** command
- Install the fonts needed to print data
- Define an AFP printer to SAP R/3
- Maintain the **CVTPRTDTA** command configuration files
- Install the appropriate SAP R/3 printer device types
- Define AFP resources to SAP R/3
- Print Output Text Format (OTF) and ABAP files from SAP R/3 on printers driven by Print Services Facility (PSF) for iSeries.
- Print SCS output on SCS printers driven by the **AFP(*NO)** print writer.

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1. From Nancy Bancroft's *Implementing SAP R/3*, Greenwich: Manning Publications Company, Inc., 1996, p. 5.

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Chapter 2. The CVTPRTDTA Command

This section describes how to prepare the SAP R/3 system and OS/400 to use the **CVTPRTDTA** command:
- "SAP R/3 Requirements for the **CVTPRTDTA** Command"
- "What Printers Are Supported for **CVTPRTDTA** with OS/400?"
- "What Bar Codes Are Supported for **CVTPRTDTA** with OS/400?"
- "Installing the **CVTPRTDTA** Command and Required Fonts"

SAP R/3 Requirements for the CVTPRTDTA Command

The **CVTPRTDTA** command requires an SAP R/3 spool exit. SAP R/3 provides this spool exit on Version 3.0C GA and all subsequent releases. If your SAP R/3 installation is not at this level, contact your systems support group to install the version of SAP R/3 that supports the spool exit.

This documentation applies to SAP R/3 Version 4.6.

SAP R/3 requires an OS/400 operating system running on a RISC System/6000 processor.

PSF for iSeries (feature 5102, 5112, or 5113 of product 5769–SS1, or later) is required to print the LINE and AFPDS data that is generated by the **CVTPRTDTA** command or **SAP2AFP** program..

Note: SAP R/3 procedures and documentation may change after the publication of this manual, resulting in different interface paths and other fields. Please refer to SAP R/3 documentation for the correct procedures and field names for your installed SAP R/3 version and release.

What Printers Are Supported for CVTPRTDTA with OS/400?

The **CVTPRTDTA** command of the SAP to AFP feature in PrintSuite for iSeries enables you to print files containing OTF and ABAP report listings directly from SAP R/3 to an AFP printer. You can print output from the **CVTPRTDTA** command on any AFP printer supported by OS/400. For a complete list of the printers supported and detailed information about their attachment possibilities on the iSeries, refer to *AS/400 Guide to Advanced Function Presentation and Print Services Facility* , (S544-5319) or visit IBM Printing Systems's home page at `http://www.ibm.com/printers`.

What Bar Codes Are Supported for CVTPRTDTA with OS/400?

Some SAP R/3 applications require that data is printed as a bar code. All the bar codes that can be specified in SAP R/3 are printable in AFP. If OTF specifies bar code data, the **CVTPRTDTA** command converts it into Bar Code Object Content Architecture (BCOCA) data, which is understood directly as bar codes by the control unit of the AFP printer.

To print correctly, the SAP R/3 bar codes must conform to BCOCA standards. BCOCA is supported by IBM's Intelligent Printer Data Stream (IPDS) printers. See the *IBM Printing Systems: Printer Summary*, S544–5749 or visit IBM Printing Systems's home page at `http://www.ibm.com/printers` for a list of IBM's IPDS printers.

Installing the CVTPRTDTA Command and Required Fonts

To install the **CVTPRTDTA** command, you must install PrintSuite for iSeries, SAP R/3 AFP Printing feature for iSeries. To perform this task, see the *PrintSuite for AS/400* compact disk read-only memory (CD-ROM) disk.

The SAP R/3 AFP PrintSuite feature includes several types of objects and files that you require:

- Some AFP resources, the **CVTPRTDTA** command and command processor, the message file, and product information in the **QPRTTOOL** library
- Configuration files that are installed in the **/QIBM/ProdData/PrintSuite** directory when the PrintSuite feature is installed.

To print output from the **CVTPRTDTA** command using the AFP data stream, on the system from which you will print.

You must install the appropriate fonts if you plan to use **CVTPRTDTA** to produce spooled files containing either **LINE** or **AFPDS** data. If you need to install those fonts, they are available in the IBM AFP Font Collection (program number 5648113). To determine the fonts you require, see Table 2. To avoid errors caused by missing fonts, install all the options specified for the printers that you are using.

For instructions on installing and using fonts with OS/400, see the *Installation Directory* that is provided with the IBM AFP Font Collection (program number 5648113).

Table 2. Deciding Which Fonts to Install for **CVTPRTDTA**

PSF for iSeries Printing Tasks	Installation Libraries
Printing OTF and ABAP files on 240-pel printers	QFNTCDEPAG Library QFNT240LA1 Library QFNTCF_LA1 Library QFNT240BM Library QFNT240OCR Library
Printing OTF and ABAP files on 300-pel printers	QFNT300CPL Library QFNTCDEPAG Library QFNT300LA1 Library QFNTCF_LA1 Library QFNT300BM Library QFNT300OCR Library

In order to use the fonts, these libraries must be included in the library list searched by the PSF for iSeries printer device printing the output. There are several methods for ensuring the required libraries are accessible by PSF. If the fonts are not available to PSF and a spooled file's **FIDELITY** attribute is specified as ***CONTENT**, PSF makes font substitutions when it prints. Substituted fonts may cause you to receive output with unexpected results. Refer to *OS/400 Printer Device Programming*, SC41–5713 for information about setting up a library list.

Chapter 3. Printing from SAP R/3 Using the CVTPRTDTA Command

This section describes how you can spool data for AFP printers using the **CVTPRTDTA** command from SAP R/3. It describes how you can customize printing for both OTF and ABAP output data streams:
- "Using Access Method L"
- "Creating an SAP R/3 AFP Output Device"
- "Using the **CVTPRTDTA** Command" on page 6
- "Using AFP Resources in an SAP R/3 Environment" on page 8
- "Printing SAP R/3 Data" on page 9
- "Printing ABAP List Data" on page 12

Using Access Method L

SAP R/3 provides Access Method **L** to pass print files and print option parameters to the **CVTPRTDTA** command. Both OTF and ABAP list files can be printed using Access Method **L**. When you print a file using Access Method **L**, SAP R/3 puts a collection of print option parameters with the print data. Of these, the **CVTPRTDTA** command uses only nine print option parameters. See "Print Option Parameters In The Input File That Are Used By **CVTPRTDTA**" on page 7 for a list of these parameters.

Creating an SAP R/3 AFP Output Device

To define a SAP R/3 AFP printer, you must define a printer name and connect it with a device type. To perform this task, use the following procedure:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Spool Administration* path or typing /nSPAD in the Command field.
2. From the **Spool Administration: Initial Screen** window, click the **Full Administration** push button (F7).
3. Select the **Output devices** field and click the **Change** icon to get to the **Spool Administration: List of Output Devices** panel.
4. From the **Spool Administration: List of Output Devices** panel, create an entry for the new output device by selecting **Create** icon.
5. From the **Spool Administration: Create Output Device** window, specify the following:
   a. In the **Output device** field, enter a name to identify the output device.
   b. In the **Short name** field, enter a 4-letter short name starting with **Z**.
   c. In the **Device type** field, select **SAPGOF_E** (for an EBCDIC SAP R/3 system) or **SAPGOF** (for an ASCII SAP R/3 system) to connect the output device to a device type.
   d. In the **Spool server** field, select a server.
   e. Choose the **HostSpoolAccMethod** tab.
   f. In the **Host spool access method** field, enter access method **L**.
   g. In the **Host printer** field, specify an OS/400 output queue name (OUTQ), such as PRT01. This value specifies the output queue on the OS/400 operating system and is used for the **OUTQ(*OBJ)** parameter of the **CVTPRTDTA** command.
   h. In the **Command record ID** field, enter a letter and double-click the field.

      The **Create Output Device** dialog box appears.
   i. In the **Command to transfer print data** field, enter:

      `/QSYS.LIB/QPRTTOOL.LIB/CVTPRTDTA.CMD OBJ(&F) OUTQ(&P)`
   j. Choose *Edit—>Command set*.
   k. Click on the **Save** icon (Ctrl+s).

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Using the CVTPRTDTA Command

The following describes the **CVTPRTDTA** command.

Description

The Convert Print Data (**CVTPRTDTA**) command converts an Integrated File System (IFS) stream file containing print data generated by SAP R/3 and stores the converted data in a spooled file. The spooled file can then be printed on a printer configured to support Advanced Function Printing ("AFP(*YES)" specified on the printer device description).

Enter the `CVTPRTDTA OBJ(&F) OUTQ(&P)` command to invoke the **CVTPRTDTA** command when printing with access method **L**. The output is spooled to the output queue in the SAP R/3 AFP output device. If you have generated any of the three supported data streams the file may be printed on an AFP printer.

```
                                    Job: B,I  Pgm: B,I  REXX: B,I  Exec
                                                          Threadsafe: No

                                          ┌─*OBJ─────────────────┐
►►─CVTPRTDTA─OBJ(─'object-path-name'─)─┬──────────┬─┼─*JOB─────────────────┼─)─────────►◄
                                       └─OUTQ(─────┘ └─output-queue-name────┘
```

Restrictions

The following restrictions apply to the **CVTPRTDTA** command:

- The SAP R/3 AFP PrintSuite feature is required to use this command.
- SAP R/3 provides support to edit and display the configuration files shipped with the Convert Print Data feature.
- To submit this command, you must have both object management authority for the object to be spooled and add authority to the output queue specified. Execute authority is required for all path prefixes.
- Only objects that are a byte stream file type will be spooled.

Parameter Description

OBJ   Specifies the path name of the stream file that contains the SAP R/3 source. The source object will be unlinked upon successful completion of the command.

object-path-name

The SAP R/3 source file is in the object specified. The path name may either be a simple name or qualified with the name of a directory in which SAP R/3 stores the object. If the name is qualified, it must be enclosed in apostrophes. If the command is used in SAP R\3, use &F for the qualified name in uppercase, or &f for the case-sensitive qualified name. If the command is used in SAP R/3, use &P for the output queue in the Output Device description.

Note: This parameter is required.

OUTQ   Specifies the output queue used for the spooled output.

*OBJ:

The output queue defined in the SAP R/3 source file (**PRNAME** print option parameter) identified in the **OBJ** parameter is used for the spooled output.

If you do not specify the **PRNAME** print option parameter and you do specify ***OBJ**, the output is spooled to the output queue associated with the job issuing the command.

*JOB: The output queue associated with this job is used for the spooled output.

output-queue-name: Specify the name and the output queue to which the output data is spooled. The library list locates the output queue.

Note: This parameter is not required.

Print Option Parameters In The Input File That Are Used By CVTPRTDTA

When you print a file using Access Method **L**, SAP R/3 puts a collection of parameters with the print data. Only the following nine print option parameters are used by the **CVTPRTDTA** command:

*CODEPAGE=   Specifies the code page used for formatting the output.

You must define this name in the *xxxxyyyy*.**tab** configuration file, where *xxxxyyyy* represents the code page used in printing.

*FORMAT=   Specifies a data format of either OTF or LIST.

*PRNAME=   Specifies the 1 to 10-character name of the OS/400 output queue.

*PJCOPIES=   Specifies the number of copies for this print job.

*PJPAPER=   Specifies the name of the formatting (format type).

For ABAP list format data, the **CVTPRTDTA** command maps the **PJPAPER** parameter to an entry in the **/QIBM/UserData/PrintSuite/pagedef.tab** or the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration file. From this configuration file, the **CVTPRTDTA** command uses the name of a page definition and a form definition to use when spooling the print request.

*PJFORM   Used to find a page definition and form definition in the **pagedef.tab** configuration file.

*PJOWNER   The owner of the spooled output.

*RQID   The spool identifier of the request.

*PJUSER   The owner of the spooled output (the same as ***PJOWNER**).

Examples.

Example 1

This command prints direct output to a specific output queue named **PRT01**:

```
CVTPRTDTA OBJ('/mydir/otf1') OUTQ(PRT01)
```

You have specified the source to be in */mydir/otf1*. The generated spool file is directed to the PRT01 output queue, which is located through the job's library list.

Example 2

This command uses the output queue indicated in the data stream file:

```
CVTPRTDTA OBJ('/mydir/otf1') OUTQ(*OBJ)
```

You have specified the source to be in */mydir/otf1*. The file is spooled to the output queue (which is located through the job's library list) specified in the **PRNAME** print option parameter inside the source data stream.

Convert Print Data Display:

```
                        Convert Print Data (CVTPRTDTA)

  Type choices, press Enter.

  Object . . . . . . . . . . . . .   _____
  _____

  Output queue . . . . . . . . . .    *OBJ         Name, *OBJ, *JOB




  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
  F24=More keys
```

Using AFP Resources in an SAP R/3 Environment

Printing in an SAP R/3 application is controlled by the resources that are defined in SAP R/3 spool administration. All resources are predefined in configuration files that consist of interconnected tables. The following sections describe the AFP resources that are defined in these configuration tables.

AFP resources provide a clear separation between data and resources. This separation enables installations to place reusable information, such as constant text or logos, into resources that are isolated from application data. The following information describes some standard AFP resources, examines their availability on the OS/400 operating system, and shows how they are predefined in SAP R/3 configuration files.

The first step in printing from SAP R/3 is to create the AFP resources that you must use to print.

Using Form Definitions

A form definition specifies how the printer controls the processing of the physical sheets of paper. In a form definition, you can specify modifications that distinguish formatting one print job from another when both are derived from the same data. For information about which form definitions come with the OS/400 operating system, refer to *OS/400 Printer Device Programming*, SC41–5713.

Form definitions describe the physical medium for printing:
* Is it simplex or duplex?
* Does the page print portrait or landscape?
* What bin does it come from?
* Does it contain an overlay?

Form definitions can be created on an OS/400 operating system with the Page Printing Formatting Aid (PPFA) feature of AFP PrintSuite (either 5798AF3 or 5798AF4). For more information about creating form definitions, refer to "Print Control Objects" in *Data Stream and Object Architectures: Mixed Object Document Content Architecture Reference*, (SC31-6802).

Printing with Form Definitions and Overlays

In AFP, the name of the overlay object must be contained in a form definition. Form definitions are created through a program product called Page Printer Formatting Aid (PPFA), which is available as a separately orderable feature of PrintSuite of the OS/400 operating system. Also, you can create form definitions on either OS/390 or AIX hosts using PPFA.

You can create overlays on iSeries with Advanced Function Printing Utilities/400 (AFPU/400) or IBM Infoprint Designer for AS/400, program number 5733–ID1.

Using Overlays

An overlay is a collection of predefined data such as lines, shading, text, boxes, or logos that can be merged with variable data when printing on a page. Overlays can be created on an OS/400 operating system with Advanced Function Printing Utilities/400 (AFPU/400).

Using Page Definitions

A page definition is a resource that defines the rules for converting line data into composed pages and text controls. If you want to use existing page definitions, restrict SAPscript formatting to an ASCII line printer and use a grid of fixed lines and print positions. Then place the variable data at the positions defined in the page definition. Because the SAP R/3 ASCII printer driver does not support channel codes, the available printing functions are limited.

Printing SAP R/3 Data

SAPscript is the formatting program comparable to IBM's Document Composition Facility (DCF). SAPscript processing creates a data stream in Output Text Format (OTF) that contains records with the print options, fixed text, and variable data placed on the page by a particular printer. OTF is used in most of the commercial applications that comprise SAP R/3, such as invoices, bills, reminders, and paychecks. Usually, OTF uses typographic fonts such as Times Roman or Helvetica.

The **CVTPRTDTA** command converts OTF into an AFP data stream. OTF is SAP's spooler data format for word processing. In addition, **CVTPRTDTA** transforms the traditional ABAP listing format into line data.

The following examines the two features of printing OTF through the **CVTPRTDTA** command:
- "Defining Device Types, Page Formats, and Format Types"
- "Printing with Form Definitions and Overlays" on page 8

Defining Device Types, Page Formats, and Format Types

A page format contains the information about the medium, such as its size and whether the medium is landscape or portrait. A format type contains formatting information and print controls. Although the **SAPGOF** device type does not need formatting information, SAP requires format types to print.

For OTF data, only paper types starting with **Z** are mapped to user-specific form definitions. For format types beginning with **Z**, characters two through seven are appended with **F1** to identify the form definition that PSF for iSeries uses to print the output. For example, a format type of **ZABCDE** for an OTF file would result in the job being spooled using form definition **F1ABCDE**. For format types that begin with characters other than **Z**, the **CVTPRTDTA** command uses the printer default form definition (***DEVD**) to spool the file.

Connecting a New Device Type with User-Specified Definitions

Once the device type (either **SAPGOF** or **SAPGOF_E**) is connected to the existing output device that is described in "Creating an SAP R/3 AFP Output Device" on page 5, you can connect the device type with user-specific definitions, such as the page format and the format type. **CVTPRTDTA** maps the format type into the name of both a form definition and a page definition specified in either the **/QIBM/UserData/PrintSuite/pagedef.tab** or the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration file for ABAP list format data.

To define a page format:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Spool Administration* path or typing `/nSPAD` in the Command field.
2. From the **Spool Administration: Initial Screen** panel, click the **Full Administration** push button.
3. Click on the **Device types** tab.
4. Click on the **Page formats** push button.

5. From the **Spool Administration: List of Page Formats** panel, select a format that matches the paper loaded in your printer, such as `DINA4` with a portrait presentation mode, for example.

6. Click on the **Change** icon (`F8`).

7. Click on the **Create using template** icon (`F5`).

8. From the **Spool Administration: Copy Page Format from DINA4** panel, enter the name of a new page format in the **Page format** field. The first character must begin with a **Z** and match the format type that you will create in "Creating a Format Type", which follows this topic.

9. Click on the **Save** icon (`Ctrl+S`).

10. From the **Create Object Directory Entry** window either:
    - Enter the name in the **Development Class** field and click on the **Save** icon.
    - Click the **Local object** button.

A page format does not have any effect on the **CVTPRTDTA** command, but a format type does. For output devices whose device types are something other than **SAPGOF** and **SAPGOF_E**, both page format and format type provide formatting information and specific print control through the format type. For output devices whose device types are either **SAPGOF** or **SAPGOF_E**, the print controls are empty because all formatting is done in OTF. Page orientation is determined by the form definition.

Creating a Format Type

The form definition must be in the library list of the job that is spooling the output. Any **PJFORM** parameter values that begin with a character other than **Z** spool OTF output using the printer default form definition. For more information about form definitions, see *OS/400 Printer Device Programming*, SC41–5713.

For ABAP list format data, the **CVTPRTDTA** command maps the **PJFORM** parameter to an entry in the **/QIBM/UserData/PrintSuite/pagedef.tab** or the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration file. From this configuration file, the **CVTPRTDTA** command uses the name of a page definition and a form definition to use when spooling the print request.

Assume that you have created an overlay named **O1LTRHED** that contains your company's logo and business address. To place the overlay on the page, you have created a form definition named **F1MYLOGO**.

To create a format type:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Spool Administration* path or typing `/nSPAD` in the Command field.

2. From the **Spool Administration: Initial Screen** panel, click the **Full Administration** push button.

3. Select the **Device types** tab.

4. Click on the **Format types** push button.

5. From the **Spool Administration: List of Formats** window, select the same format that you selected in "Connecting a New Device Type with User-Specified Definitions" on page 9. In our example, it is **DINA4** portrait.

6. Click on the **Create using template** icon (`F5`).

7. From the **Spool Administration: Copy Format from DINA4** window, specify:

   a. The name of a new format type, using a **Z** as the first character, in the **Format type** field, **ZMYLOGO** for example.

   b. The name of the page format you just created in "Connecting a New Device Type with User-Specified Definitions" on page 9 in the **Page format** field.

   Note: Depending upon your SAP R/3 installation, an **Information** panel may appear to inform you that the new page format has been created successfully.

8. Click on the **Save** icon (`Ctrl+S`).

Add an entry for **ZMYLOGO** referencing the form definition **F1MYLOGO** to the **/QIBM/UserData/PrintSuite/pagedef.tab** configuration file. This step makes the **ZMYLOGO** format type available for use with your ABAP list format data.

9. From the **Create Object Directory Entry** window either:
   - Enter the name in the **Development Class** field and click on the **Save** icon.
   - Click the **Local object** button.

10. From the **Spool admin: Page format** panel is displayed with the message: "Create page format Landscape?". Select the **Yes** push button and the system displays the Information panel.

Connecting a New Format Type with a Device Format

To connect the new format type with a device format:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Spool Administration* path or typing /nSPAD in the Command field.

2. From the **Spool Administration: Initial Screen** panel, click the **Full Administration** push button.

3. Select the **Device types** tab.

4. Click on the **Device types** push button.

5. Type the name in the **Device types** field and click on the **Device types** push button.

6. From the **Spool Administration: Device Type** panel, click on the **Formats** icon.

7. From the **Spool Administration: Choose Format for Device Type** panel, type:
   a. The name of the device type (either **SAPGOF** or **SAPGOF_E**) in the **Device type** field.
   b. The name of the format type that you created in "Creating a Format Type" on page 10 (**ZMYLOGO**) in the **Format** or **Formatting Process** field.

8. Select **Execute**.

This produces a list of all device format parameters.

9. From the **Spool Administration: Maintain Format for Device Type** panel:
   a. Select **Copy format**.
   b. Type the name of an existing AFP device type (either **SAPGOF** or **SAPGOF_E**) into the **Fr. Device type** field.
   c. Type the name of a format type (**DINA4**, for example) in the **Formatting process** field.
   d. Click on the **Copy reference** or **Copy from** push button.
   e. Click on the **save folder** icon.

Now you have made all the necessary definitions and connections to print with a page definition and a form definition.

Changing the Maximum Width of a Barcode in SAP R/3

To change the maximum width of a bar code in SAP R/3 so it will print, you must access transaction SE73, where the SAP R/3 system defines maximum barcode width and height, and change the defaults. If you attempt to print a job that contains barcodes that are either too wide or too long, you will receive a message from the AFP printer driver, indicating that the bar code is not in the valid printable area for the printer.

To change the maximum width or height of a bar code in SAP R/3, use the following procedure:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Font Maintenance* path or typing /nSE73 in the Command field.

2. From the **SAPscript Font Maintenance: Initial screen**, select **System bar codes** and click on the **Change** push button.

3. From the **SAPscript Font Maintenance: Change System Bar Codes** screen,

- Single click on the bar code name.
- Click on the **Change** icon.

4. From the **SAPscript Font Maintenance: Create/Change System Barcodes** screen, change either bar code width or height to work correctly with your application.

5. Click on the **Okay** icon.

   An informational message indicates that the table entry was included in the task.

6. Respool your bar code document.

Printing ABAP List Data

ABAP is a classical computer listing that contains fixed characters, line positions, and fixed fonts, such as Courier. SAP R/3 uses this format whenever you request a report. Some SAP R/3 applications use report printing for outputting forms.

The following information describes features of printing with ABAP list format with the **CVTPRTDTA** command using MO:DCA-P and Line Data:

- "Naming a Format Type"
- "Printing Reports"

Naming a Format Type

For ABAP list format data, the **CVTPRTDTA** command determines a page definition and a form definition by looking for the format type in the configuration file for a match. Some format types provided by SAP R/3 already have an entry in the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration file. To add to or modify these entries, copy this file into the **/QIBM/UserData/PrintSuite/pagedef.tab** configuration file.

If **CVTPRTDTA** finds a match, it reads the form definition and page definition from that entry. The line data that the **CVTPRTDTA** command creates is transformed into MO:DCA-P, using the page definition. Then, the MO:DCA-P file is printed using the form definition in the **/QIBM/UserData/PrintSuite/pagedef.tab** configuration file or the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration file. If the configuration file contains no entry, OS/400 fails the command. To create a format type, see "Creating a Format Type" on page 10.

Printing Reports

ABAP reports are the second data format that the **CVTPRTDTA** command can process. In this case, you need to format the data through the format type. All format types are mapped to appropriate form definitions and page definitions through the **/QIBM/UserData/PrintSuite/pagedef.tab** and the **/QIBM/ProdData/PrintSuite/pagedef.tab** configuration files.

To create your own formatting on a report, you must provide a specific format type that begins with **Z** and must have made a matching entry in the **/QIBM/UserData/PrintSuite/pagedef.tab**.

To view your own format in SAP, refer to the **Spool Administration: List of Formats** panel.

Chapter 4. Using the SAP2AFP Program

This section describes how to use the **SAP2AFP** program to print SCS data or to specify fully-qualified path names.

Printing SCS data with the SAP2AFP Program

Creating a SAP R/3 SCS Output Device

To define a SAP R/3 printer, you must define a printer name and connect it with a device type. To perform this task, use the following procedure:

1. From the SAP menu, access the **Spool Administration** menu by selecting the **Tools** main menu and then selecting the *Tools —> CCMS —> Spool —> Spool Administration* path or typing `/nSPAD` in the Command field.

2. From the **Spool Administration: Initial Screen** window, click the **Full Administration** push button (`F7`).

3. Select the **Output devices** field and click the **Change** icon to get to the **Spool Administration: List of Output Devices** panel.

4. From the **Spool Administration: List of Output Devices** panel, create an entry for the new output device by selecting **Create** icon.

5. From the **Spool Administration: Create Output Device** window, specify the following:

   a. In the **Output device** field, enter a name to identify the output device.

   b. In the **Short name** field, enter a 4-letter short name starting with **Z**.

   c. In the **Device type** field, select **SAPGOF_E** (for an EBCDIC SAP R/3 system) or **SAPGOF** (for an ASCII SAP R/3 system) to connect the output device to a device type.

   d. In the **Spool server** field, select a server.

   e. Choose the **HostSpoolAccMethod** tab.

   f. In the **Host spool access method** field, enter access method **L**.

   g. In the **Host printer** field, specify an OS/400 output queue name (OUTQ), such as `PRT01`. This value specifies the output queue on the OS/400 operating system and is used for the **OUTQ(*OBJ)** parameter of the **SAP2AFP** program.

   h. In the **Command record ID** field, enter a letter and double-click the field.

      The **Create Output Device** dialog box appears.

   i. In the **Command to transfer print data** field, enter:

      `/QSYS.LIB/QPRTTOOL.LIB/SAP2AFP.PGM -d &P -f &F -SCS`

   j. Choose *Edit —> Command set*.

   k. Click on the **Save** icon (`Ctrl+s`).

For SCS printing, the required fonts are installed on the printer you are using. No downloadable, nor installable fonts are allowed.

Note: AFP resources are not supported in SCS printing.

The SCS printer data stream does not use page definitions, form definitions, or paper types. The required formats are set by the SCS printer and are not changed by the SAP2AFP program.

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What Printers Are Supported for DBCS SCS Printing with the SAP2AFP Program?

You can print DBCS output from the SAP2AFP program on the following supported SCS printers:

- 5327
- 5337
- 5427
- 5417-001
- 5407-001
- 5400-006
- 5337-001 (Non-impact DBCS printers)

You must use an OS/400 printer device description specifying `AFP(*NO)` when using these printers.

Notes:

1. PSF/400 does not support SCS printers.

2. Although **SAP2AFP** can be used with SBCS SCS printers, SAP's Access Method **C** and Device Type IBMSCS provide a larger set of supported printing options. It is recommended you use this when printing to SBCS SCS Printers. See SAP's *SAP Printing Guide (BC)* for further details.

Specifying a Fully-Qualified Path Name Using the SAP2AFP Program

You may use the **-u** parameter of the **SAP2AFP** program to specify a fully-qualified path name to your modified or customized tables when you print your data. The **CVTPRTDTA** command first searches the **/QIBM/UserData/PrintSuite** then the **/QIBM/ProdData/PrintSuite** paths for your table. With the **-u** parameter of the **SAP2AFP** program, you can specify a different fully-qualified path name. If the table is not found in the specified path, the program then searches the **/QIBM/ProdData/PrintSuite** path.

The **-u** parameter allows you to maintain different sets of tables for different print needs. For example, if your modified tables were located in a path you have created called **/home/print/my_tables**, you could enter a print command to specify that path. See Figure 1 for an example of how use the **-u** parameter to specify a fully-qualified path name.

```
/QSYS.LIB/QPRTTOOL.LIB/SAP2AFP.PGM -d &P -f &F -u /home/print/my_tables
```

*Figure 1. Fully-Qualified Path Name. An example of using the **-u** parameter to specify a fully-qualified path name.*

If the **-u** parameter is not specified when using the **SAP2AFP** program, the program searches for your configuration file in the same manner as the **CVTPRTDTA** command.

Chapter 5. Configuration Files

This section consists of examples for the following configuration files that are required for the
CVTPRTDTA command and **SAP2AFP** program:

- "barcode.tab"
- "defcp.tab" on page 16
- "xxxxyyyy.tab" on page 17
- "fonts.tab" on page 18
- "pagedef.tab" on page 20

Notes:

1. All tables can contain comments (starting with `//` in column 1) and empty lines. These lines are ignored by the **CVTPRTDTA** command.

2. All table entries are case sensitive.

3. Master tables are provided in the **/QIBM/ProdData/PrintSuite** directory. To add to or modify these entries, copy the **/QIBM/ProdData/PrintSuite** files into the directory which you created for your modified configuration files.

    Note: Edit files only in the directory you created. Versions of these tables that you have modified should be kept in the directory you created to avoid being overwritten if the configuration files are reloaded.

4. The ability to edit and display these files is part of the support available under iSeries SAP R/3. Use the command **EDTF** to edit configuration files in the directory you created.

5. SAP R/3 on the iSeries operating system can produce EBCDIC or ASCII data that is converted into EBCDIC which is needed to transform to the AFP data stream. Therefore, the code page tables (**defcp.tab**, and **xxxyyyy.tab**) perform a one-to-one mapping in the iSeries environment.

barcode.tab

This table describes the bar code mappings. SAP R/3 calls bar codes by names that must be mapped into the matching bar code types and modes that are available with BCOCA. The **CVTPRTDTA** command and **SAP2AFP** program can accommodate 32 entries in this table.

Note: Bar codes are not supported with the SCS feature of PSF.

To change the bar code lengths and widths for printing on SAP R/3, see "Changing the Maximum Width of a Barcode in SAP R/3" on page 11.

The **barcode.tab** configuration file uses the following keyword-value pairs:

BarCode   Specifies the OTF bar code names (**SAPBARCODE** parameter of the **BC** OTF command). The maximum length of this field is 8 bytes; it can contain any value.

Type   Specifies the BCOCA bar code type as defined in the *Bar Code Content Object Content Architecture Reference* for the **Type** field of the **Barcode Symbol Descriptor** MO:DCA-P data structure. The content is numeric and is not validated until the spooled file is active to a writer. For the **Type** values that are currently supported, see Table 3 on page 16.

Mode   Specifies the BCOCA bar code modifier value as defined in the *Bar Code Content Object Content Architecture Reference* for the **MOD** field of the **Barcode Symbol Descriptor** MO:DCA-P data structure. The content is numeric and is not validated until the spooled file is active to a writer. For the **Mode** values that are currently supported, see Table 3 on page 16.

Flag   Controls the printing of the Human Readable Interface (**HRI**) character. Specify one of the following values:

> **000** Causes the **HRI** character to be printed
>
> **128** Causes the **HRI** character not to be printed

Notes:

1. The system administrator is responsible for the values entered in the table. Invalid values are not verified and may result in Intelligent Printer Data Stream (IPDS) errors.

2. To add to or modify these entries, copy the files into the **/QIBM/UserData/PrintSuite/barcode.tab** configuration file.

   Note: Edit files only in the **UserData** configuration file.

3. A font named **BARCODE** must appear in the **fonts.tab** configuration file when you are printing with HRI.

Table 3. BCOCA Bar Code Modifier Codes Required for Each Bar Code

Bar Code Type	Mode
001 Code 39 (3-of-9 Code), AIM USS-39	001 and 002
002 MSI (Modified Plessey code)	001 through 009
003 UPC/CGPC Version A	000
005 UPC/CGPC Version E	000
006 UPC - Two-digit Supplemental	000
007 UPC - Five-digit Supplemental	000
008 EAN 8 (includes JAN-short)	000
009 EAN 13 (includes JAN-standard)	000
010 Industrial 2-of-5	001 and 002
011 Matrix 2-of-5	001 and 002
012 Interleaved 2-of-5, AIX USS-I 2/5	001 and 002
013 Codabar,2-of-7, AIX USS-Codabar	001 and 002
017 Codabar,2-of-7, AIX USS-Codabar	002
022 EAN Two-digit Supplemental	000
023 EAN Five-digit Supplemental	000
026 POSTNET	001 through 009

defcp.tab

The **CVTPRTDTA** command and **SAP2AFP** program use a table for line data conversion or if no **CP** OTF command is found and the OS/400 code page is not the same as the SAP R/3 code page (500).

In most cases, this mapping will be one-to-one. The actual mapping is provided for all cases where the EBCDIC value is unique. The vertical ellipsis between certain numbers indicates where the ASCII numbers match the EBCDIC numbers.

The **CVTPRTDTA** command and **SAP2AFP** program use code points 000 to 010 internally to map the box characters in ABAP list data into the correct code points of code page **TID***x***BASE**. The umlaut characters from code page 500 are also provided.

Sample configuration files are provided for specifying fonts for DBCS languages. Rename the file to "defcp.tab" and store it in a directory you have created for custom tables. The sample files are as follows:

defcp.japan

Used for specifying LINE data for SBCS and DBCS coded fonts for Japanese.

defcp.korea

Used for specifying LINE data for SBCS and DBCS coded fonts for Korean.

Note: You can also use these sample configuration files as examples for creating configuration files for Traditional Chinese and Simplified Chinese DBCS fonts.

xxxxyyyy.tab

The code page for the SAP R/3 system (**00000000.tab**) contains a one-to-one mapping of SAP R/3 EBCDIC to iSeries EBCDIC. For **OCR-A** and **OCR-B** fonts, these tables are used for the mapping of characters of an individual SAP R/3 ASCII code page into an EBCDIC codepage.

SAP R/3 uses two kinds of code pages: Input-Code page and Output-Code page.

SAP R/3 predefines some special code pages whose file names correspond to the 4-digit value of the **INPUTCODEPAGE** and **OUTPUTCODEPAGE** parameter of the **CP** OTF command, for example, **00000000.tab**, **40010000.tab**, and **40040000.tab**. The file names correspond to the 4-digit value of the **INPUTCODEPAGE** and **OUTPUTCODEPAGE** parameter of the **CP** OTF command (**00000000.tab**, **40010000.tab**, and **40040000.tab**). Table 4 shows the files used to map a SAP R/3 codepage to an EBCDIC codepage:

Table 4. Code Page Mapping Tables

SAP R/3 Code Page	xxxxyyyy.tab Files
0000, code page for the SAP R/3 system	00000000.tab
1100, code page for the SAP R/3 system	11000000.tab
0120, code page for the SAP R/3 system	01200000.tab
4001, code page for OCR-A fonts	40010000.tab
4004, code page for OCR-B fonts	40040000.tab
8000, code page for Japanese DBCS	80000000.tab
8300, code page for Traditional Chinese DBCS	83000000.tab
8400, code page for Simplified Chinese DBCS	84000000.tab
8500, code page for Korean DBCS.	85000000.tab

fonts.tab

This table maps the fonts used in the OTF data stream to AFP fonts. The **CVTPRTDTA** command and **SAP2AFP** program can accommodate 2000 entries in this table.

The following font families are predefined with SAP R/3:

Font Family	Font
COURIER	Courier
HELVE	Helvetica
LETGOTH	Letter Gothic
LNPRINT	Line Print
TIMES	Times New Roman
OCRA	Optical Character Recognition A
OCRB	Optical Character Recognition B
JPMINCHO	Heisei Mincho
DBMINCHO	Heisei Mincho
DBGOTHIC	Heisei Gothic

Note: **JPMINCHO** and **DBMINCHO** are different names for the same font.

The following parameters in the **fonts.tab** configuration file set the format of the fonts you use to print with SAP R/3:

DefCodePage   Default code page if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

DefCharSet   Default character set used if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

DBDefCodePage
Specifies the default DBCS code page if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

DBDefCharSet
Specifies the default DBCS character set if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

SBDefCodePage
Specifies the default SBCS code page used for half-width characters in DBCS fonts if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

SBDefCharSet
Specifies the default SBCS character set used for half-width characters in DBCS fonts if no **FC** OTF command is given or if the requested font is not found in the **fonts.tab** table.

Font   Describes the font family (**FONTFAMILY** parameter of the **FC** OTF command). Maximum size is 8 bytes, and content is not verified.

Size   Gives the font size in 1/10 of a point (**FONT SIZE** parameter of the **FC** OTF command). The value must be numeric and is not verified.

Type   Defines the font type (**BOLD** and **ITALIC** parameter of the **FC** OTF command). **Type=0** is Normal, **Type=1** is Italic, **Type=2** is Bold, and **Type=3** is Bold and Italic. Any other value is invalid.

CodePage   Specifies the code page and requires a valid AFP code page name (8 bytes). The value is not verified. An invalid name might result in an IPDS error message.

CharSet   Specifies the AFP character set name. The content is not verified.

DB   Specifies whether the font is an SBCS font (**DB=0**) or a DBCS font (**DB=1**).

| **SBCodePage** Specifies the single-byte code page used for half-width characters in DBCS fonts. The value is not verified. An invalid name can result in an error message.

| **SBCharSet** Specifies the AFP single-byte font character set used for half-width characters in DBCS fonts. The value is not verified.

| **SBCodedFont**
| Specifies the AFP single-byte font coded font used for half-width characters in DBCS fonts. The value is not verified.

Notes:

1. A font named **BARCODE** must be defined for the **HRI** character of a bar code.

| 2. If no matching font is found (the *Font*, *Size*, and *Type* combination), the **CVTPRTDTA** command and
| **SAP2AFP** program use the code page and character set from the **DefCodePage** and **DefCharSet** keywords and displays a warning message.

| If an SBCS font that matches the **Font**, **Size**, and **Type** values is not found, the code page and font
| character set from the **DefCodePage** and **DefCharSet** keywords are used and a warning message is
| displayed. If a DBCS font that matches the **Font**, **Size**, and **Type** values is not found, the code page and
| font character set from the **DBDefCodePage**, **SBDefCodePage**, **DBDefCharSet**, and **SBDefCharSet**
| keywords are used and a warning message is displayed.

The device types **SAPGOF** and **SAPGOF_E** support the three font families: Courier, Helvetica, and Times. These font families are also supported as IBM Expanded Core Fonts. ISO 8859-1 (Latin-1) is the default code page supported by SAP R/3. This code page is mapped in the **fonts.tab** initialization table of the
| **CVTPRTDTA** command and **SAP2AFP** program into the International **T1V10500** code page. This code page must be modified for Non-Latin-1 SAP R/3 installations.

Use the font Letter Gothic Latin1 from the coordinated font family for ABAP listings. If an installation does not want to install the coordinated font family and plans to use the traditional Gothic text fonts found within the IBM Compatibility fonts, the installation can adjust the font names in the **pagedef.tab** configuration file.

pagedef.tab

The page definition table provides a mapping of the SAP R/3 **Paper type** to the **PAGEDEF** and **FORMDEF** values that are used with ABAP printed output. If an entry for the ***PJFORM** parameter does not appear in the table, SAP R/3 fails the command. Also, the **pagedef.tab** table provides the fonts that are used for line data.

Note: Page definitions are not supported in the SCS data stream.

Paper   Specifies the value of the OTF Infoline parameter **PJFORM**. The value is not verified.

FormDef   Specifies the name of the form definition to be used for printing both OTF and ABAP reports.

PageDef   Name of the page definition to be used for printing of ABAP reports. The contents of both parameters are not verified and will result in an IPDS error if the **FORMDEF** or **PAGEDEF** is not found at print time. The **FontNorm** and **FontBold** keywords describe the fonts used for line data printing. The value is not checked.

Sample configuration files are provided for specifying fonts for DBCS languages. Rename the file to "pagedef.tab" and store it in a directory you have created for custom tables. The sample files are as follows:

defcp.japan
        Used for specifying LINE data for SBCS and DBCS coded fonts for Japanese.

defcp.korea
        Used for specifying LINE data for SBCS and DBCS coded fonts for Korean.

Note: You can also use these sample configuration files as examples for creating configuration files for Traditional Chinese and Simplified Chinese DBCS fonts.

Appendix. Elements of Printing in a SAP R/3 Application

The following elements of the spool administration affect printing in a SAP R/3 application environment.

Output queues

A print request must be directed to an output queue. An output queue must be connected with the SAP R/3 output device that can be used for that printer.

Output device

For printing, a particular device type must be connected with a particular device initialization and can be connected with a particular paper type. This combination is a user-defined device type.

Page formats

Page formats describe the format of a page. Although page formats have no influence on either the SAPscript formatter or AFP printing, they must have the same name as the paper type when you change a layout set.

Paper types

Paper types define how a page is formatted. For ABAP listings, they specify the number of characters per line and the number of lines per page. Because the formatting in OTF is done by the SAPscript formatter, the paper type has no effect. But the **CVTPRTDTA** command maps the paper type into the name of a form definition that can call out an overlay. The paper type is very important in AFP printing and must be connected with a device type.

Device initialization

The device initialization contains parameters to control the individual printers. Users must copy the dummy device initialization of an **SAPGOF** or **SAPGOF_E** device type for every paper type and cannot use the device initialization of a device type other than an **SAPGOF** or **SAPGOF_E** device type.

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- Print Services Facility for iSeries™
- PSF for iSeries™
- RISC System/6000®
- Print Services Facility for AS/400™
- PSF for AS/400™
- System/390®

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EuroReady

PrintSuite for iSeries is capable of processing data containing the euro sign. Font character sets and code pages that contain and map the euro sign consistently with the application must be present either in a host library or in the printer. AFP fonts that support the euro sign are included in the AFP Font Collection (Program Number 5648-B33).

Year 2000 Ready

PrintSuite for iSeries does not have date dependencies and is therefore Year 2000 ready. When used in accordance with its associated documentation, PrintSuite for iSeries is capable of correctly processing, providing, and receiving date data within and between the twentieth and twenty-first centuries, provided all other products used with PrintSuite for iSeries (including software, hardware, and firmware) properly exchange accurate date data with it.

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PrintSuite for iSeries
SAP R/3 Advanced Function Printing:
Printing on iSeries

Publication No. S544-5412-02

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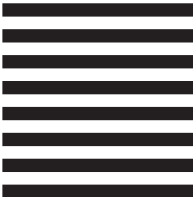Fold and Tape   **Please do not staple**   Fold and Tape

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